



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/075,367

02/15/2002

O'Hagan Kenneth

031616.0003

8848

21967

7590

02/06/2006

HUNTON & WILLIAMS LLP  
INTELLECTUAL PROPERTY DEPARTMENT  
1900 K STREET, N.W.  
SUITE 1200  
WASHINGTON, DC 20006-1109

EXAMINER

FILE, ERIN M

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 02/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/075,367	<b>Applicant(s)</b> KENNETH, O'HAGAN	
	<b>Examiner</b> Erin M. File	<b>Art Unit</b> 2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 23 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10, 12-16, 19-24, 27-33, 35, 37-39, 42, 43, 45, 47, 49 and 52 is/are rejected.
- 7) ☒ Claim(s) 11, 17, 18, 25, 26, 34, 36, 40, 41, 44, 46, 48, 50 and 51 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/15/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 11/23/2005 with respect to the rejection of claim(s) 1, 2, 4-9, 13-15, 28-33, 35, 37, and 38 under 35 U.S.C. 102(b) have been fully considered but they are not persuasive.

The applicants contends Agrawal fails to disclose encoding data with n-bit orthogonal codes. Wikipedia defines encoding as transforming a signal into a form optimized for transmission or storage. In figure 2A Agrawal shows the signal  $S(t)$  is multiplied by the orthogonal code  $W_i(t)$ , resulting in signal  $S(t)W_i(t)$ , a signal which has been optimized for transmission. Further the assertion that Agrawal does not anticipate the claims because Agrawal discloses a time dependent process is invalid because a time independent decoding is not claimed in the instant application.

2. Applicant's arguments, see Remarks, filed 11/23/2005, with respect to the rejection(s) of claim(s) 16, 20-24, 27, 39 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of Nam.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2, 4-9, 13-15, 28-33, 35, 37, 38, 45, 47, 49, and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Agrawal.

**Claims 1, 2, 4-7, 9, 14, 28-31, 33, 37, 38**, Agrawal discloses encoding signal  $s(t)$  with orthogonal codes  $w_i(t)$  (fig. 2A, 202) and then spreading the encoded signal with a pseudo random (PN) spreading signal (204). Further Agrawal discloses the use of a PN spreading code of 1,024 bits (col. 8, line 1). The orthogonal Walsh function is of length 4 (col. 5, lines 30-40). PN spreading code of length 1,024 is an integer multiple of the Walsh function of length 4.

**Claims 8, 13, 35**, Agrawal further discloses differential encoding in the form of Quadrature phase shift keying (QPSK) encoding (fig. 4A, 300).

**Claim 15, 32**, Agrawal discloses modulating the data by a quadrature phase shift keying spreader (fig. 4A, 300), and further transmitting the signal (410A).

**Claim 43**, Agrawal discloses generation of parallel spread spectrum data by encoding signal  $s(t)$  with orthogonal codes  $w_i(t)$  (fig. 2A, 202) and then spreading the encoded signal with a pseudo random (PN) spreading signal (204). Further Agrawal discloses the use of a PN spreading code of 1,024 bits (col. 8, line 1). The orthogonal Walsh function is of length 4 (col. 5, lines 30-40). PN spreading code of length 1,024 is an integer multiple of the Walsh function of length 4. Agrawal further discloses quadrature phase-shift key modulators (QPSK, fig. 4A, 300). As well as a receiver (fig. 6, 602), a transmitter (fig. 4A, 410A), and means of recovering received data (fig. 6).

**Claim 45**, Agrawal further discloses encoding and spreading a data stream according to a first encoding scheme with an orthogonal Walsh encoder (fig. 4,  $W_N(t)$ , col. 10, lines 9-24).

**Claims 47, 49, 52**, Agrawal discloses spreading the encoded signal with a pseudo random (PN) spreading signal (fig. 2A, 204).

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 2634

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 16, 20, 23, 39 rejected under 35 U.S.C. 102(e) as being anticipated by Nam.

**Claims 16, 39**, Nam discloses a communications system including receiving a parallel spread spectrum communication signal (fig. 3, ANT<sub>1-N</sub>, col. 1, lines 35-40) and recovering a data stream from said parallel spread spectrum communications signal (fig. 3, 110').

**Claim 20**, Nam further discloses receiving a parallel spread spectrum communication signal at a first receiver (fig. 1, 16) and relaying said received parallel spread spectrum communication signal to a second receiver (col. 2, lines 61-64, fig. 1, 16').

**Claim 23**, Nam discloses transmitting (fig. 1, 10, 18, 20) received parallel spread communication signal (fig. 1, 12) to said second receiver (fig. 1, 12').

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2634

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal.

**Claim 3**, Agrawal does not disclose expressly encoding of length 8 bits. However, applicant has not disclosed a code length of eight is used for a particular purpose, or solves a stated problem, but instead discloses the code length must be a power of 2, such as 4, 8 or 16 (p.8 line 15). As Agrawal discloses the use of a code length of 4, one of ordinary skill in the art would have expected Applicant's invention to perform equally well with a code length of 4.

**Claim 12**, Although Agrawal discloses differential encoding in the form of Quadrature phase shift keying (QPSK) differential encoding, but fails to disclose binary phase shift keying (BPSK) modulation. However, BPSK is actually a reduced, simpler form of QPSK modulation. For this reason it would be obvious to one skilled in the art at the time of invention to use BPSK in place of QPSK modulation in Agrawal's invention.

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal and in further view of Schilling et al.

Art Unit: 2634

**Claim 10**, inherits the limitations of Claim 9. Although Agrawal discloses transmitting data represented by Walsh codes, he fails to disclose segmenting data streams in to multiple bit data packets. However, Schilling discloses parallel spread spectrum transmission of data packets (col. 1, lines 6-9). Because of the prevalence of using data packets in transmitting parallel spread spectrum data as described by Schilling, it would be obvious to one skilled in the art at the time of invention to incorporate Schilling's data packetization into Agrawal's apparatus.

8. Claims 21, 22, 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nam.

**Claims 21, 22, 24**, contain the limitations of Claim 20 above. Nam discloses that his communication system is for use in a wireless network. Nam fails to specifically disclose the use of a base station or mobile telephone as a first receiver, or a cellular device as a second receiver. However, because Nam discloses the use of wireless devices, the use of common wireless devices such as a first receiver as a base station, a first receiver as a mobile telephone, and a second receiver as a cellular device would be obvious to one skilled in the art at the time of invention.

9. Claims 19 and 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nam and in further view of Agrawal et al.



**Claims 19, 27**, see the limitations of Claim 16 above, further though Nam fails to disclose encoding data with  $n$  bit orthogonal codes and multiplying by an  $m$  bit spreading sequence, where  $m$  is an integer multiple of  $n$ , Agrawal discloses encoding signal  $s(t)$  with orthogonal codes  $w_i(t)$  (fig. 2A, 202) and then spreading the encoded signal with a pseudo random (PN) spreading signal (204). Further Agrawal discloses the use of a PN spreading code of 1,024 bits (col. 8, line 1). The orthogonal Walsh function is of length 4 (col. 5, lines 30-40). PN spreading code of length 1,024 is an integer multiple of the Walsh function of length 4. Agrawal notes the need for enabling multiple transmitter without the creation of interference (col. 2, lines 49-51). Nam discloses an object of his invention is to mitigate the interference of received signals (col. 1, lines 51-54). Because Agrawal's transmission method would reduce the creation of interference, it would be obvious to one skilled in the art at the time of invention to incorporate Agrawal's transmission method into Nam's communication system.

### ***Allowable Subject Matter***

10. Claims 11, 17, 18, 25, 26, 34, 36, 40-44, 46, 48, 50, 51 are objected to as dependent upon rejected claims, but would be allowable if rewritten in independent form.

### ***Conclusion***

Art Unit: 2634

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040. The examiner can normally be reached on M-F 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin M. File

EF

1/30/2006

  
CHIEH M. FAN  
SUPERVISORY PATENT EXAMINER